AI/LEARN/RHEUMATOLOGY for Windows

Li-Jen Huang, M.S.*, Joyce A. Mitchell, Ph.D.*, James H. Cutts III, M.S.*
John Reid, Ph.D.*, Alan J. Bridges, M.D.**
*Medical Informatics Group, University of Missouri-Columbia
**Department of Internal Medicine, University of Wisconsin

INTRODUCTION

AI/LEARN/RHEUMATOLOGY for Windows is a computer-assisted interactive videodisc system designed to teach clinical observation skills and reasoning process in medicine. It conveys knowledge using visual and problem-solving techniques. AI/LEARN/RHEUMATOLOGY uses two monitors to present the courseware: the PC monitor shows the text and graphics designed by education experts; the other monitor, connected to the videodisc, shows the video slide or motion sequences corresponding to the text. This project implemented the existing DOS version of AI/LEARN/RHEUMATOLOGY[1][2] in a Windows environment.

METHOD

AI/LEARN/RHEUMATOLOGY for Windows was implemented using Asymetrix's Toolbook. The courseware was created as a "book" that consists of pages. The user flips a page by clicking a button or selecting a command from the menu bar. To control the videodisc player, a Windows Dynamic Link Library (DLL) was developed and linked with Toolbook. The first step was to design the page layout, and to create text fields and navigation buttons on each page. The DLL was developed using Borland C. The DLL controls the Pioneer LD-V4200 videodisc player from any Windows application. The DLL then was linked with Toolbook so AI/LEARN/-RHEUMATOLOGY can call DLL functions to locate the videodisc images needed. The DLL's ability to put overlay text in the videodisc monitor enables AI/LEARN/RHEUMATOLOGY to use overlay text extensively as an aide in explaining the videodisc image. The second step was to link all the pages in order and incorporate the videodisc images (with overlay) or sequences into the course. The last step in the project was to create the menu bar command and to implement the security control of the system. This was done by using Toolbook's OpenScript, which allows the creation and control of standard Windows' graphical objects like dialog boxes and menu bars.

DEMONSTRATION

AI/LEARN/RHEUMATOLOGY for Windows requires a PC-compatible computer (80386 class) with a VGA monitor, a Pioneer LD-V4200 videodisc player with a monitor, and Microsoft Windows version 3.0 or higher.

The demonstration will focus on:

- **Security control**: Two access levels are available in the system. The student needs a key disk to enter the system. The key disk records the student's responses. The author level user gains access by entering a system password.
- **User interface in the system**: The users interact with AI/LEARN/RHEUMATOLOGY through buttons, hypertext, and menu bars. A button may take a user to a different page, trigger motion sequences, give more information about the current page, or serve as a choice in a question. Hypertext is highlighted text that is linked to some place that gives more detailed information. The menu bar commands can be executed any time.
- **Educational principles within the system**: AI/LEARN/RHEUMATOLOGY uses exemplar/non-exemplar pairs to facilitate visual concept learning. Multiple-choice questions test the student's learning.
- **Analysis utility**: An author level user has an extra set of menu commands. The author can initialize a student's key disk, view the tracking file, and change the system password.
- **Modification to the system**: A template is available so authors can create new modules with minimum effort.

Reference

[1] J.H. Cutts III, S.E. Hazelwood, J.A. Mitchell, A.J. Bridges, J.C. Reid. GALE: A Graphics Assisted Learning Environment for Computer-Based Interactive Videodisc Education. Int J Biomed Comput 31:141-150, 1992.

[2] A.J. Bridges, D. Dansdill, J. Anderson, J. Reid, S. Hazelwood, J.H. Cutts III, E.P. Gall, G. Sharp, J.A. Mitchell. AI/LEARN/Rheumatology: A Computer-Assisted Educational System for Teaching about Rheumatic Diseases. Arthritis Care and Research 5(1):3-7, 1992.

0195-4210/92/$5.00